

SODERBERG HALL-HEROULT CELL

(Illustration 11)

In the Hall cell with the Soderberg anode (like in Anaconda's Columbia Falls, Montana reduction plant), anodes are baked "in-situ" by waste heat from the cell. A steel casing or mold containing the aggregate-binder mixture or preformed briquettes at various stages of baking, is mounted over the cell. The carbon mass is made to slip through the casing at the rate of oxidation in the electrolyte. In the vertical spike version, electrical contact is made by steel spikes, each pulled periodically (by a special tool) and set to a higher level as its tip approaches the electrolysis interface.

Soderberg cells save capital, labor, and the energy required to manufacture the prebaked anodes. However, they obtain lower electrical energy efficiency and experience greater difficulty in collecting and disposing of baking fumes.

Columbia Falls is implementing many technological improvements to keep the Soderberg technology competitive with the prebaked hall cells.

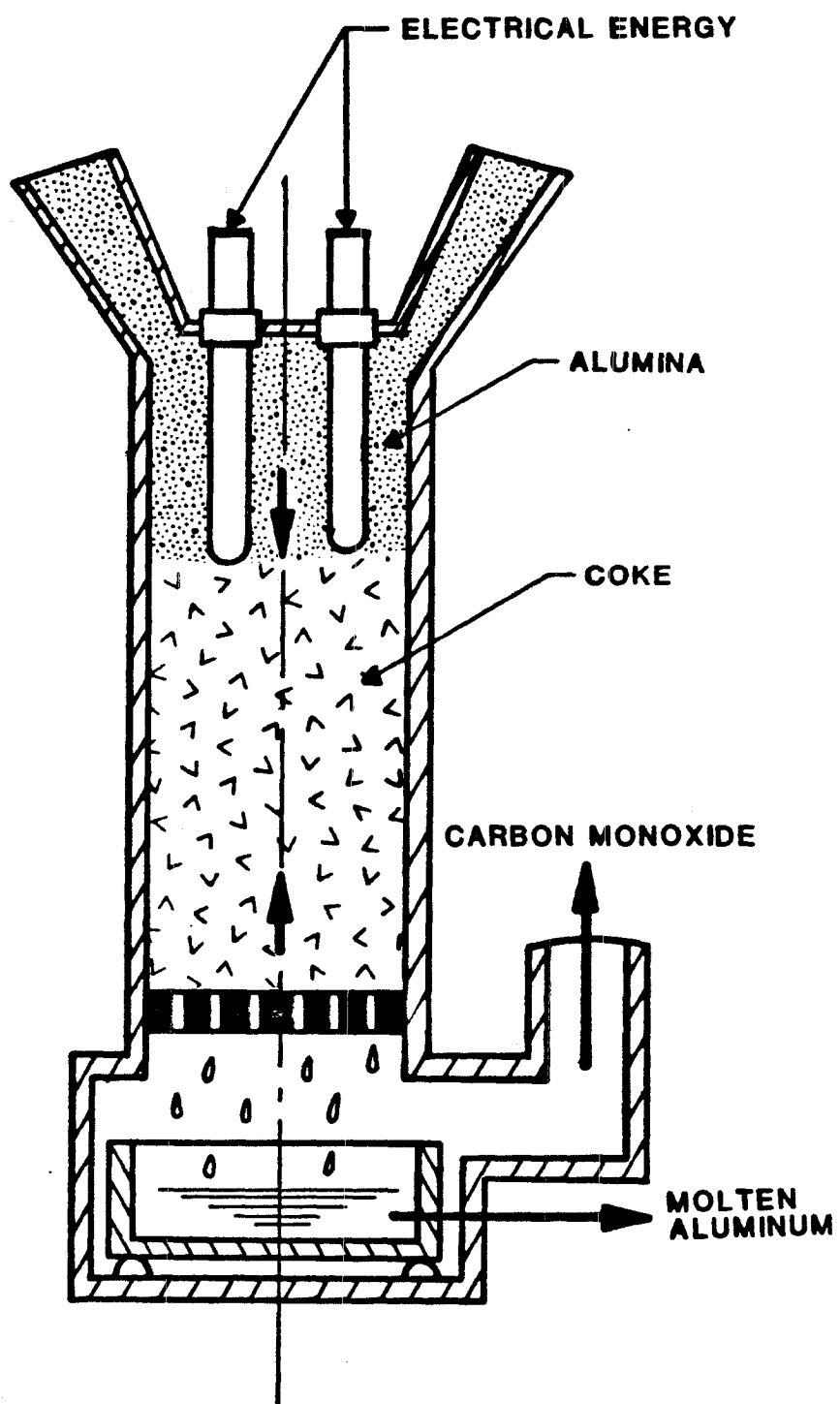


ILLUSTRATION 12 - CARBOTHERMIC PRODUCTION OF ALUMINUM